

**ABSTRACT:**

Method and Apparatus for Increasing the Number of Strong Eigenmodes in a Multiple-Input Multiple-Output (MIMO) Radio Channel

The invention provides a system for implementing a high capacity MIMO system with high throughput which will ensure an eigenmode rich channel largely irrespective of the environment. In conventional MIMO systems, the environment can substantially reduce the theoretically achievable throughput if there is little angular diversity. The system includes a scattering structure for scattering beams emitted by an antenna array to provide good angular diversity at the receiver and hence good throughput in all environments. In addition, the scattering structure is controllable to allow its properties and hence the eigenmodes generated to be varied to maximise the efficiency of the system.

Figure 2